## STEM Activities

### Suitable for ages 5–9

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What is a Makerspace?

A makerspace is an innovation space filled with materials designed to facilitate and encourage creative thinking. Young learners bring their design ideas to life through real-life, do-it-yourself building tasks.

In a makerspace, children must select their own building materials, allowing them to have a truly open-ended, creative, problem-solving experience. See below for a list of suggested items to use.

- Glue
- Paper
- Scissors
- Play-Doh
- Building bricks
- Markers
- Paint
- Paper towel rolls
- Paper cups
- Paper plates
- Paper bowls

- Straws
- Ribbon
- Coffee stirrers
- Craft sticks
- Cotton wool balls
- Wool
- Egg carton
- Tape
- Pipe cleaners
- Sponges
- Bits from the recycling bin

What will my children learn through makerspace activities?

There are lots of benefits to makerspace activities! Here are just a few of them:

- Empower student curiosity and creativity
- Foster independent problem-solving
- Build confidence as children persevere through mistakes
- Provide the opportunity to innovate
Questions to ask your child while they are creating

Remind children that the design process is never complete! Have children ask themselves questions such as:

- How can I improve my design?
- Can I add another feature to my design?
- Can I rebuild this with another material?

Reflecting is a critical part of the design process. Have children ask themselves questions such as:

- What could I have done better?
- What can I do differently next time?
- What did I learn during this activity?

Encourage children if they get stuck during a design. As Thomas Edison once said, “I have not failed. I’ve just found 10,000 ways that won’t work.”

Makerspace Activities

Each of the following activities will take children anywhere from 10–30 minutes. Children should start by identifying which materials to use for their design. There are no right or wrong answers during makerspace—this is a time to **explore, create and design!**
Day 1
Design and build a 3-dimensional puzzle.

Any materials can be used in a makerspace! Which items in your house might work well to build a 3-dimensional puzzle?

Tip
Sketch out your puzzle before you start making the pieces and building it. Make sure to identify how all the pieces will fit together.

Think Bigger
Make another 3-dimensional puzzle using different materials. Can you make your new puzzle even bigger?
Day 2
Design and build a suncatcher.

Tip
Think about materials that light can travel through. Decide whether your suncatcher will be 2-dimensional or 3-dimensional.

Think Bigger
Add a label or tag to your suncatcher to describe how the light is reflected, absorbed, or transmitted through the suncatcher.
Day 3
Design and build a cup holder that floats in a pool.

Tip
Think about materials that will keep your cup afloat.

Think Bigger
Modify your cup holder so that it can hold 2 cups and a sandwich.
Day 4

Design and build a Rube Goldberg machine.

Your Rube Goldberg machine should contain at least 5 different steps, travel at least 1 metre, and take 3 seconds or more to complete.

Tip

First, decide on the goal or last step of your machine.

Think Bigger

Add a step where an object goes airborne somewhere in the process.

Modify your Rube Goldberg machine so it takes 10 seconds to run from start to finish.
Day 5
Design and build a pom-pom catapult.

Tip
When designing your catapult, think about materials that have elasticity.

Think Bigger
Make a game by creating a target or container to launch pom-poms toward. Modify your design so your catapult can launch more than 1 pom-pom at a time.